

REMARKS

Claims 1 to 26 are pending in this application, of which claims 1 and 18 are the independent claims. Favorable reconsideration and further examination are respectfully requested.

Claim 1 was rejected over Grigg (U.S. Patent 6,548,897). As shown above, Applicants have amended the claims to define the invention more clearly. In view of these amendments, withdrawal of the art rejection is respectfully requested.

Claim 1, as amended, is directed to a semiconductor structure that includes a semiconductor substrate and a compliant interconnect element disposed on a first surface of the substrate. The compliant interconnect element includes a portion that extends across and away from the first surface of the substrate to define a chamber between the portion of the compliant interconnect element and the first surface of the substrate.

The applied art is not understood to disclose or to suggest the foregoing features of claim 1. In particular, Grigg is not understood to disclose or to suggest a portion extending across and away from a first surface of a substrate to define a chamber between the portion and the first surface.

In particular, Grigg shows a ring disposed on a substrate. The ring surrounds the periphery of a contact pad and at least a portion of the surrounded contact pad is exposed through an aperture defined by the ring. The ring is configured to surround a solder ball to give lateral support to the solder ball even during the contraction and expansion of the solder ball thereby reducing solder fatigue. Grigg, however, does not disclose or suggest that any portion of the ring

extends away from or across the substrate to define a chamber. Furthermore, since the rings are intended to receive solder balls, any extension of the ring over the substrate would prevent the rings from receiving the solder balls and providing the desired lateral support.

Moreover, Grigg's ring does not define a chamber, but as Grigg describes, the ring forms an "aperture." Applicants submit that the word "chamber" is not synonymous with the word "aperture". For example, the Webster's New Collegiate Dictionary defines "aperture" as "an opening" (see attached).

Thus, as understood by Applicants, Grigg does not disclose or suggest at least a portion of a compliant interconnect element extending across and away from the first surface of the substrate to define a chamber between the portion of the compliant interconnect element and the first surface of the substrate. For at least this reason, claim 1 is believed to be in condition for allowance.

Claim 18 roughly corresponds to claim 1 and, therefore, is believed to be allowable for at least the same reasons as claim 1 noted above.

Applicants submit that the entire application is now in condition for allowance. Such action is respectfully requested at the Examiner's earliest convenience.

All correspondence should be directed to the address below. Applicants' attorney can be reached by telephone at the number shown below.


Applicant : Harry Hedler et al.
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No fee is believed to be due for this Amendment; however, if any fees are due, please
apply such fees to Deposit Account No. 06-1050 referencing Attorney Docket 13292-007001.

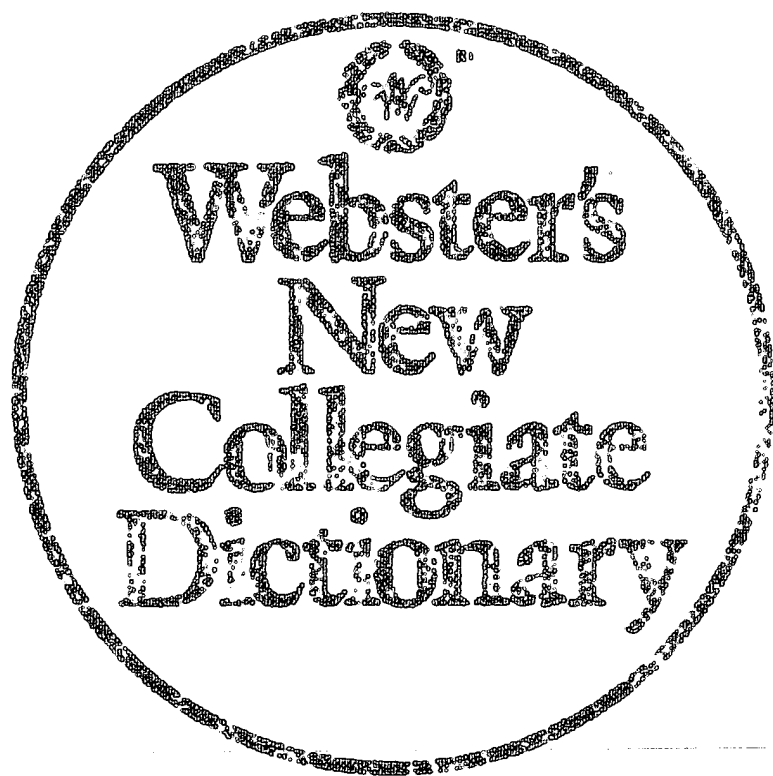
Respectfully submitted,

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Paul A. Rysher
Reg. No. 40,780

Fish & Richardson P.C.
225 Franklin Street
Boston, MA 02110-2804
Telephone: (617) 542-5070
Facsimile: (617) 542-8906



a Merriam-Webster

b. any of a family (Pongidae) of large simian primates (as the chimpanzee or gorilla) — called also *anthropoid ape*. 2. *a.* MIMIC *b.* a large uncouth person — *ape-like* /'a-plik/adj. 3. *a.* MIMIC *b.* *ape w. aped*; *ap-ing*: to copy closely but often clumsily and ineptly (servants *aping* the ways of their betters) — *syn* see COPY.

ape-r /'a-per/adj. or adv. [alter. of earlier *apike*, prob. fr. *a.* + *pike*]: being in a vertical position (with ears ~).

ape-man /'ap-man/ n. [a. + *man*]: a primate (as, *pithecanthropus*) intermediate in character between Homo sapiens and the higher apes.

aperçu /'a-per-sü/ n. pl. *aperçus* /'süz/ [F.]: 1. an immediate impression; *esp.*: INSIGHT 2. a brief survey or sketch — *OUTLINE*.

aperient /'a-pir-ent/ adj. [L. *aperient*, *aperiens*, pp. of *aperire*]: gently moving the bowels — *LAXATIVE* — *aperient* n.

aperiodic /'a-pir-ē-dik/ adj. 1. of irregular occurrence (~ floods) 2. not having periodic vibrations: not oscillatory 3. *cryptology*: not repeating or not repeating with a short or easily discoverable period (an ~ key) — *aperiodical-ly* /'i-k(-ə)-lē/adv. — *aperiodicity* /'e-z(-ə)-dī-si-ti/ n.

aperitif /'a-per-ē-tif/ n. [F. *apéritif*, *aperient*, *aperitif*, fr. MF *aperitif*, adj., *aperient*, fr. ML *aperitivus*, irreg. fr. L *aperire*]: an alcoholic drink taken before a meal as an appetizer.

aperture /'a-p(ə)-ch(ə)r/ n. [ME. fr. L *aper-tura*, fr. *aperire*, pp. of *aperire* to open — more at *WEIR*]: 1. an opening or open space — *HOLE* 2. *a.* the opening in a photographic lens that admits the light *b.* the diameter of the stop in an optical system that determines the diameter of the bundle of rays traversing the instrument *c.* the diameter of the objective lens or mirror of a telescope — *syn* APERTURE, INTERSTICE, ORIFICE shared meaning element: an opening allowing passage through or in and out.

apetalous /'a-pet-1-əs/ adj.: having no petals — *apet-ely* /'i-ē/adv.

apex /'a-p(ə)-ks/ n. pl. *apex-es* or *apices* /'a-p(ə)-sēz, 'ap-ə-/ [L. *a.*]: the uppermost point — *VERTEX* (the ~ of a mountain) *b.* the narrowest or pointed end — *TIP* (the ~ of the tongue) 2. the highest or culminating point (the ~ of his career) — *syn* see *SUMMIT*.

aphaeresis or **apheresis** /'a-f(ə)-sēz/ n. pl. *eses* /'sēz/ [LL. fr. Gk *aphairesis*, lit. taking off, fr. *aphairein* to take away, fr. *apo-* + *hairein* to take]: the loss of one or more sounds or letters at the beginning of a word (as in *round* for *around* and *coon* for *raccoon*) — *aphaeretic* /'a-f(ə)-ret-ik/ adj.

aphanite /'a-f(ə)-nit/ n. [F. fr. Gk *aphanēs*, invisible, fr. *a-* + *phainō* to appear — more at *PHENOMENON*]: a dark rock of such close texture that its separate grains are invisible to the naked eye — *aphanitic* /'a-f(ə)-nit-ik/ adj.

aphasia /'a-f(ə)-zh(ə)-sē/ n. [NL. fr. Gk, fr. *a-* + *phasia*]: loss or impairment of the power to use words usu. resulting from a brain lesion — *aphasic* /'a-f(ə)-sē/ adj. — *aphasia* /'a-f(ə)-sē/ n. or adj.

aphelion /'a-f(ə)-yən/ n. pl. *elias* /'y(ə)-/ [NL. fr. *apo-* + Gk *helios* sun — more at *SOLAR*]: the point of a planet's or comet's orbit most distant from the sun — compare *PERHELION*.

aphesis /'a-f(ə)-sē/ n. pl. *eses* /'sēz/ [NL. fr. Gk, release, fr. *aphienai* to let go, fr. *apo-* + *hienai* to send — more at *LET*]: *aphaeresis* consisting of the loss of a short unaccented vowel (as in *lone* for *alone*) — *aphetic* /'a-f(ə)-t(ə)-k/ adj. — *aphetic-ally* /'i-k(-ə)-lē/adv.

aphid /'a-f(ə)-d/ n.: any of numerous small sluggish homopterous insects (superfamily Aphidoidea) that suck the juices of plants.

aphis /'a-f(ə)-s/ n. pl. *aphides* /'a-f(ə)-dēz, 'a-f(ə)-/ [NL. *Aphis*, genus name]: an aphid of a common genus (*Aphis*); *brood* — *APHID*.

aphis lion n.: any of several insect larvae (as a lacewing or ladybug larva) that feed on aphids.

apholate /'a-f(ə)-lat/ n. [prob. fr. *az-* + *phosphine* + *-late* (of unknown origin)]: a chemosterilant, esp. effective in controlling houseflies.

aphonia /'a-f(ə)-n(ə)-ə/ n. [NL. fr. Gk *aphonia*, fr. *aphonos* voiceless, fr. *a-* + *phōnē* sound — more at *BAN*]: loss of voice and of all but whispered speech — *aphonic* /'a-f(ə)-n(ə)-k/ adj.

aphorism /'a-f(ə)-r(ə)-z(ə)-m/ n. [MF *aphorisme*, fr. LL *aphorismus*, fr. Gk *aphorismos* definition, aphorism, fr. *aphorizein* to define, fr. *apo-* + *horizein* to bound — more at *HORIZON*]: 1. a concise statement of a principle 2. a terse formulation of a truth or sentiment — *ADAGE* — *aphoristic* /'a-f(ə)-r(ə)-st(ə)-k/ adj. — *aphoristic-ly* /'i-k(-ə)-lē/adv.

aphorize /'a-f(ə)-r(ə)-z(ə)-v/ v. *aphorized*, *aphorizing*: to write or speak in or as if in aphorisms.

aphotic /'a-f(ə)-t(ə)-k/ adj.: lacking light (the ~ zone in the ocean).

aphrodisiac /'a-f(ə)-r(ə)-diz-ē-ak/ adj. [Gk *aphrodisiakos*, sexual, fr. *aphrodisia* sexual pleasures, fr. neut. pl. of *aphrodisios* of Aphrodite, fr. *Aphrodite*]: exciting sexual desire — *aphrodisiac* n. — *aphrodisiacal* /'a-f(ə)-r(ə)-diz-ē-ak(-ə)-l/ adj.

Aphrodite /'a-f(ə)-r(ə)-dīt-ē/ n. [Gk *Aphrodite*]: the Greek goddess of love and beauty — compare *VENUS*.

aphyllous /'a-f(ə)-l(ə)-s/ adj. [Gk *aphyllous*, fr. *a-* + *phyllon* leaf — more at *LABEL*]: not having foliage leaves — *aphyll* /'a-f(ə)-l/ n.

API abbr.: 1. air position indicator. 2. American Petroleum Institute.

api-an /'a-pi-ən/ adj. [L. *apiarius*, fr. *apis*]: of or relating to bees.

apiarian /'a-pi-er-ē-ən/ adj.: of or relating to beekeeping or bees.

apiarist /'a-pi-er-ē-ist/ n. pl. *arists* /'ar-ēst/ n.: BEEKEEPER.

apiary /'a-pi-er-ē-ri/ n. pl. *aries* /'ar-ēri/ [L. *apiarium*, fr. *apis* bee]: a place where bees are kept, esp. a collection of hives or colonies of bees kept for their honey.

apical /'a-pi-k(ə)-l/ also *ap-i-* /'a-pi-/ adj. [prob. fr. NL *apicalis*, fr. L *apic-*, *apex*]: of, relating to, or situated at an apex — 2. [of, relating to, or formed with the tip of the tongue (n. L. and r are consonants)] — *apically* /'i-k(-ə)-lē/adv.

apical dominance n.: inhibition of the growth of lateral buds by the terminal bud of a shoot.

apiculate /'a-pi-k(ə)-l(ə)-t/ adj. [NL *apiculus*, dim. of L *apex*, apex]: ending abruptly in a small distinct point (an ~ leaf).

apiculture /'a-pi-k(ə)-l(ə)-ch(ə)r/ n. [prob. fr. F. fr. L *apis* bee + *fructu-*]: the keeping of bees esp. on a large scale — *apicultur-ly* /'a-pi-k(ə)-l(ə)-ch(ə)-r(ə)-lē/adj. — *apiculturist* /'a-pi-k(ə)-l(ə)-ch(ə)-r(ə)-lē/ n.

apiece /'a-pi-sē/ adv.: for each one — INDIVIDUALLY.

Apis /'a-pis/ n. [L. fr. Gk, fr. Egypt *hṗ*]: a sacred bull worshipped by the ancient Egyptians.

apish /'a-pi-sh/ adj.: resembling an ape; as *a.* given to slavish imitation *b.* extremely silly or affected — *apish-ly* /'a-pi-sh(ə)-lē/adv. — *apishness* /'a-pi-sh(ə)-n(ə)-s/ n.

aplacental /'a-pla-sen-t(ə)-l/ adj.: having or developing no placenta.

aplanetic /'a-pla-net-ik/ adj. [a. + Gk *planasthai* to wander — more at *PLANET*]: free from or corrected for spherical aberration (an ~ lens).

aplasia /'a-pla-zh(ə)-sē/ n. [NL. fr. *a-* + *plasia*]: incomplete or faulty development of an organ or part — *aplastic* /'a-plas-tik/ adj.

aplenty /'a-plent(ə)-ē/ adj.: being in plenty or abundance (money ~ for all his needs).

aplenty /'a-plent(ə)-ē/ adv. 1. in abundance — *PLENTIFULLY* 2. very much — *EXTREMELY* (scared ~).

aplite /'a-plit/ n. [prob. fr. G *aplit*, fr. Gk *haplos* simple — more at *HAPL*]: a fine-grained light-colored granite consisting almost entirely of quartz and feldspar — *aplitic* /'a-plit-ik/ adj.

aploomb /'a-pl(ə)-l(ə)-m/ n. [F. lit. perpendicularity, fr. MF *fr. a plomb* lit. according to the plummet]: complete and confident composure or self-assurance — *poise* — *syn* see *CONFIDENCE* ant *shyness*.

apnea or **apnoea** /'a-pn(ə)-ə/ n. [NL]: 1. transient cessation of respiration 2. *ASPHYXIA* — *apneic* /'a-pn(ə)-ēk/ adj.

APO abbr. army post office.

apo- or **ap-** prefix [ME. fr. MF & L. MF. fr. L. fr. Gk, fr. *apo-* more at *OF*]: 1. away from; off (apical) 2. detached; separate (apocarpous) 3. formed from; related to (apomorphine).

Apoc abbr.: 1. Apocalypse 2. Apocrypha, apocryphal.

apocalypse /'a-p(ə)-k(ə)-l(ə)-ps/ n. [ME. *revelation*, *Revelation*, fr. LL *apokalypsis*, fr. Gk *apokalypsis*, fr. *apokalyptein* to uncover, fr. *apo-* + *kalyptein* to cover — more at *HELL*]: 1. a. one of the Jewish and Christian writings of 200 B.C. to A.D. 150 marked by pseudonymity, symbolic imagery, and the expectation of an imminent cosmic cataclysm in which God destroys the ruling powers of evil and raises the righteous to life in a messianic kingdom *b.* *cap* — *REVELATION* 2. a. something viewed as a prophetic revelation.

apocalyptic /'a-p(ə)-k(ə)-l(ə)-tik/ also *apoc-apocalyptic* /'i-k(-ə)-lē/adj. 1. of, relating to, or resembling an apocalypse 2. forecasting the ultimate destiny of the world 3. *PROPHETIC* 3. foreboding imminent disaster or final doom 4. *TERRIBLE* 5. wildly unrestrained in making predictions — *GRANDIOSE* 6. ultimately decisive — *CLIMACTIC* — *apoc-apocalyptic-ly* /'i-k(-ə)-lē/adv.

apocryphal /'a-p(ə)-k(ə)-l(ə)-f(ə)-l/ n. [L. fr. Gk *apokryphos*, lit. cutting off, fr. *apokryphos* to cut off, fr. *apo-* + *kryptein* to cut — more at *CAPON*]: the loss of one or more sounds or letters at the end of a word (as in *sing* from Old English *sangan*) — *apocryphal* /'a-p(ə)-k(ə)-l(ə)-f(ə)-l/ adj.

apocrine /'a-p(ə)-k(ə)-r(ə)-n(ə)-l/ n. [ISV *apo-* + Gk *kreinō* to separate — more at *CERTAIN*]: producing a secretion by separation of part of the cytoplasm of the secreting cells.

apocrypha /'a-p(ə)-k(ə)-r(ə)-f(ə)-l/ n. pl. *phal* /'f(ə)-l/ n. [ML. fr. LL *neut. pl. of apocryphus* secret, not canonical, fr. Gk *apokryphos* obscure, fr. *apokryphos* to hide away, fr. *apo-* + *kryptein* to hide — more at *CRYPT*]: 1. writings or statements of dubious authenticity 2. *cap*: a. books included in the Septuagint and Vulgate but excluded from the Jewish and Protestant canons of the Old Testament — see *BIBLE* table *b.* early Christian writings not included in the New Testament.

apocryphal /'a-p(ə)-k(ə)-l(ə)-f(ə)-l/ adj.: 1. often *cap*: of or resembling the Apocrypha 2. of doubtful authenticity; *SPURIOUS* — *syn* see *FICTITIOUS*.

apocryphal-ly /'a-p(ə)-k(ə)-l(ə)-f(ə)-lē/adv.

apocynthion /'a-p(ə)-s(ə)-n(ə)-th(ə)-n(ə)-l/ n. [NL. fr. *apo-* + *Cynthia*]: *ABOLONE*.

apod- /'a-p(ə)-d/ n. or **apodous** /'a-p(ə)-d(ə)-s/ adj. [Gk *apod-*, *apous*, fr. *apo-* + *pod-*, *pous* foot — more at *FOOT*]: having no feet or analogous appendages (cells are ~).

apodictic /'a-p(ə)-d(ə)-k(ə)-t(ə)-k/ also *apodictic* /'a-p(ə)-d(ə)-k(ə)-t(ə)-k/ adj. [L. *apodicticus*, fr. Gk *apodiktikos*, fr. *apodiktynai* to demonstrate, fr. *apo-* + *deiktynai* to show — more at *DICTION*]: expressing or of the nature of necessary truth or absolute certainty — *apodictic-ly* /'i-k(-ə)-lē/adv.

apodosis /'a-p(ə)-d(ə)-s(ə)-s(ə)-l/ n. pl. *osises* /'s(ə)-s(ə)-l/ [NL. fr. Gk, fr. *apodidōnai* to give back, deliver, fr. *apo-* + *didōnai* to give — more at *DATE*]: the main clause of a conditional sentence — compare *PROTASIS*.

apoenzyme /'a-p(ə)-ē-n(ə)-z(ə)-m/ n. [ISV]: a protein that forms an active enzyme system by combination with a coenzyme and determines the specificity of this system for a substrate — *apoenzyme* /'a-p(ə)-ē-n(ə)-z(ə)-m/ n.

apogamy /'a-p(ə)-g(ə)-m(ə)-ē/ n. [ISV]: development of a sporophyte from a gametophyte without fertilization — *apogamic* /'a-p(ə)-g(ə)-m(ə)-ē-ik/ or *apogamous* /'a-p(ə)-g(ə)-m(ə)-s/ adj.

apogee /'a-p(ə)-g(ə)-ē/ n. [E. *apogee*, fr. NL *apogaeum*, fr. Gk *apogaeon*, fr. neut. of *apogeos* apogee far from the earth, fr. *apo-* + *gē* earth]: 1. the point in the orbit of a satellite of the earth or of a vehicle orbiting the earth that is at the greatest distance from the center of the earth; also: the point farthest from a planet or a satellite (as the moon) reached by an object orbiting it — compare *PERIGEE* 2.